Motor Age

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Motor Age
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CYCLE AGE

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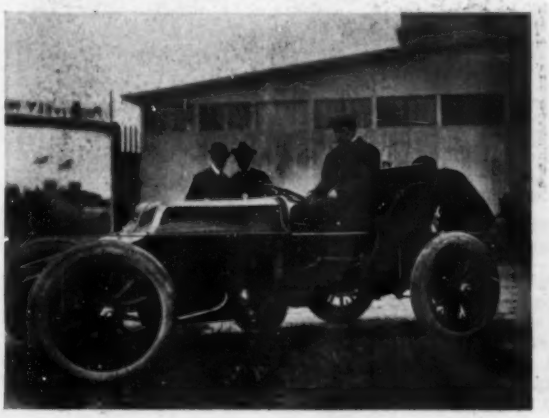
RACING, RECORDS AND GOODFELLOWSHIP AT PROVIDENCE.

F. E. Stanley in Steam Carriage of Latest Design.



Alexander Winton and the Bullet.

OPPOSING TYPES AT PROVIDENCE RACES.

Splendid management and good racing furnished 4,000 spectators an afternoon of interesting sport at the second annual race meet of the Rhode Island Automobile Club at Narragansett track last Wednesday. Notwithstanding the gloomy weather a stiff wind and a slight rise on the back stretch, and an abrupt turn at the first curve, new records were made and the visitors enthused. The famous Winton Bullet and its smaller brother, the Pup, were seen in the east for the first time, and shared the honors with Geo. C. Cannon's steamer, the Cannon Ball, the youthful operators of which caught the favor of the crowd. The Cannon Ball was matched against John W. Howard's steamer at 3 miles, but the latter met with an accident a few days before the race and was unable to appear.

* * *

In an exhibition trial against time Cannon made a new world's record for steamers up to 5 miles and in a subsequent trial new world's record for all types of machines for one mile. Alexander Winton in his Bullet made new track records for 5 to 6 miles, but his machine was later beaten by his New York manager, Percy Owen in the Pup, who captured three first prizes and made new times for middle weight vehicles.

The motor cycle race of 5 miles, the first event, was called promptly at 2 o'clock, and eleven men faced the starter. Will R. Pittman had entered a Kelecom, but shortly before the race his saddle broke and he did not start. For the first 3 miles Oscar Hedstrom, on an Indian, led, but he was passed by George M. Holden on a similar machine, who won easily; Farr (Orient), second; F. W. Godfrey (Orient), third. Time 7:34.

In the second race, a 2-mile open for electrics, Knight Neflel, of Brooklyn, in a touring car of his make, ran away from the field and won in 4:23.

* * *

The race between the steamers, which were all stock machines, was one of the prettiest contests of the afternoon. Five machines started, two Whites, a Toledo, a Stanley and a Locomobile. For the first mile the Locomobile led, with the others close behind. Approaching the grand stand at the end of the first mile the Stanley was seen to be crawling up and on the backstretch passed into first place. By this time the crowd was on its feet yelling and waving hats. The Stanley held the lead for one mile, only to go back to the Locomobile. In the final mile A. L. Lee, in a Toledo, with an unsuspected reserve of power, shot into first place and won by about 150 yards; W. Hinscheliffe (Locomobile), second; W. H. Talbot (Stanley), third. Time 5:08.

When Alexander Winton came on the track in an attempt to lower the world's record for 10 miles the

difference between his methods and those of Fournier, who was the principal attraction at the track last year, was apparent. Instead of coming in front of the grand stand and ostentatiously arranging his levers, Winton, although this was his first appearance on the track, modestly went once around the oval to get up speed and then shot away at the crack of the pistol. When he struck the first turn one long drawn gasp came from the spectators as it was seen that one side of his powerful machine seemed to rise in the air, threatening to turn over on its occupant. An immense cloud of dust arose and when this cleared the Bullet was seen

Providence—Winton Making a Wide Sweep at the Turn.

safely turning into the back stretch and going like lightning. After this Winton took the turns wide and it was apparent that his previous records would remain untouched. The first mile was done in 1:06½, 2 miles, 2:12¼; 3 miles, 3:18 4-5; 4 miles in 4:25; 5 miles in 5:30 3-5; 6 miles, 6:39 2-5. On the sixth mile Winton slowed down and come to a stop at its finish.

He subsequently said that when he started from Cleveland he fully expected to bring the mile record down to one minute or less, but after the first mile he found he could not hold the track. The Bullet had hard springs which made speeding on the rough track dangerous. If he had let the motor out as he did in Cleveland he would not have survived the attempt. The Cleveland track, he said, had a perfect surface and he expects under proper conditions to bring his time below the minute.

* * *

The race for gasoline vehicles under 1,300 pounds proved an easy win for the Stevens-Duryea car, which made its first appearance on any track. This vehicle was equipped with its regular touring body, while several of its competitors were stripped. D. B. Huss (Oldsmobile) was second; George Reed (Knox), third. Times, by miles, 1:38¾, 3:09¼, 4:39¾, 5:11¼, 7:42¾.

The new gasoline Toledo car was entered in the race for gasoline cars over 1,300 pounds, but did not arrive in time to compete. Percy Owen in the Pup was a lap ahead of his competitors at the end of the fourth mile, and finished the race in 6:25¾. George Weed (Stearns) was second, and F. Tudor, Jr. (Winton), third. Time by miles, 1:25, 2:40¼, 3:55¼, 5:10¾, 6:25¾.

In a free-far-all, 5 miles, Owen won again, with Winton second and Harold H. Brown (Darracq), third. Winton had trouble with his clutch. Owen was successful a third time in a 5-mile race for winners and seconds in earlier events, A. L. Lee (Toledo) being second. Owen's times were: 1:19½, 2:32, 3:46, 5:00½, 6:14¾, new records for the class.

A 5-mile motor bicycle race finished the programme. John Ruel finishing first, L. P. Callahan second and R. M. Dana third, all riding Orients. Time 6:50½.

The officials who conducted the meeting were: Judges, Dr. W. P. Church, R. B. Comstock, R. H. Deming, W. G. Titcomb and J. C. B. Woods; stewards, Winthrop E. Scarritt, W. J. Stewart, Dr. J. A. Chase, R. Lincoln Lippitt, F. C. Fletcher, W. P. Mather and F. E. Perkins. Lon Peck, the veteran cyclist, was starter.

* * *

Among the visitors were W. J. Stewart, chairman of the race committee of the A. A. A.; Winthrop E. Scarritt, president of the A. A. A.; S. M. Butler, secretary of the A. C. A.; Harlan W. Whipple, Harold C. Smith, C. H. Davis, Harry Owensney, Palen Nelson, Angus Sinclair, J. C. Chase and Knight Leflel, all of New York, and Charles B. Shanks and M. L. Goss, of Cleveland. The latter had to answer many inquiries as to the famous Baker Torpedo. It was, he said, unable to appear, owing to the engagement for the Joliet races.

In the evening the Rhode Island Automobile Club gave a smoker in its rooms at the Crown Hotel and the New Yorkers were entertained in royal style. One well known chauffeur's solo on the violin was loudly cheered, as was another's exposition of the dances of Scotland, from which country he recently returned. Mr. Stewart's imitations of De Witt Talmadge's mannerisms and Percy Owens' "For Years, For Years," caught the visitors. Mr. Scarritt paid a glowing tribute to the performances of Winton and Cannon, and also told of an automoblist's trouble with the railway mail service.

* * *

The clerk of the weather was again unkind to the racing element last Saturday. Rain fell incessantly in Chicago for three days prior to Friday morning. All day Friday the sky was leaden, but no rain fell. An enthusiastic crowd decided to take chances and at 3 o'clock Friday afternoon fifteen machines were loaded on a Rock Island train and shipped to Joliet. The Winton Bullet and Pup, White racer and Mr. Harkness'

Providence—Big Field in the Motor Bicycle Races.

Mercedes had preceded them. One or two others, including Edwin F. Brown's Napier, struggled down by road, which was in such vile shape that over 8 hours were required to make the journey of less than 50 miles. Up to midnight stars were shining, and it really looked as if the track might be in condition for a day of good sport. At 7 o'clock in the morning the early birds discovered that their hopes were vain. Rain fell in torrents and continued throughout the day. Given good weather, the meeting would doubtless have been one of the most successful of the season.

Ten events were on the card. There were twenty-one entries in the 5-mile handicap, in view of which the racing committee decided to divide it into two divisions, offering two sets of prizes, placing everything, from the Winton touring car to the Oldsmobile, in one, and the two Winton racing machines, Mercedes, Napier, Peerless racer, Gladiator and White racer in the other. There were a dozen entries in the 25-mile open event, and all others had filled splendidly. Practically all of the important machines were on hand Friday night, with the others ready to be shipped as soon as word was received in Chicago that the racing would occur.

* * *

The Winton and White racers were not taken out of the express cars, but were shipped on Saturday to Detroit. The Chicago club has determined, however, that if it is possible to secure a track, the races shall be held some time this month, probably on the third Friday and Saturday. The president of the Washington Park club was approached on Tuesday, but without satisfactory results. The officials of the Harlem and Hawthorne tracks will be seen next, and the racing committee hopes to be able to make a definite announcement before the end of the week.

* * *

The rain seems to be general. On Sunday the Detroit track was still so thoroughly saturated that a further postponement of the racing was announced.

Torpedo May Be Sent Abroad.

New York, Sept. 29.—M. L. Goss, who has close business relations with W. C. Baker, told a New York reporter at the Providence races that if it were found impossible to secure a course and permission in this country for a straightaway mile trial, that the Baker electric "torpedo" would be taken to Europe, where arrangements for a trial and timing could easily be made over French roads. "We firmly believe that the Baker machine is one of the fastest in the world, but of course, we must have an opportunity to prove our statement," said he. "There are few roads in this country where a fast mile can be made, and no club seems inclined to promote a series of races over such a course. If we make a trial we want the time to be officially recorded. Over a short stretch of road recently the machine was driven a half mile in 20 seconds, which of course is many seconds within the best figure on record. The body of the machine has been painted white. Unless an opportunity is offered for an official trial this fall we shall undoubtedly ship the machine to France, where an excellent road properly policed can be obtained, together with officials from the Automobile Club of France."

Great Racing on French Roads.

Chauchard's record of 150 kilometers, or 93 miles, in 1 h. 35m. 13s. on his 70-horsepower Panhard, briefly reported by cable last week, was made near Paris on Sept. 14. The second man was Mery, with a 24-horsepower Turcat-Mery, whose time was 1h. 57m. 40s., Richard, with a machine of his own make being third in 3h. 23m. 16s. The Darracq scored again in the light class, Hemery on a 20-horsepower vehicle of that make finishing first in 1h. 48m. 17 1-5s., while a 24-horsepower Panhard, driven by Gondoin, was second in 1h. 48m. 43⅘s. Both of these machines, it will be noted, beat the time of all the heavy machines except that of the winner. Another Darracq was third. Chauchard was again successful in the hill-climbing contest for heavy vehicles, the light class and that for machines with four seats being won by Clement.

Racing at Minneapolis.

Races were held at Minneapolis on the 27th. Twelve men started in a 5-mile motor cycle race, John Nilsson winning from Tom Bird and H. T. Bascom, in that order, in 9 minutes. George Dorr won a 5-mile pursuit race, with a Winton, in 12:44, and W. E. Wheeler a 2-mile race with a Cleveland in 4:15. H. E. Wilcox and H. E. Dickenson, both with Wintons, rode 5 miles, the former winning in 10:42.

PROVIDENCE—THE ENTERTAINMENT AFTER THE RACES.

Motor Age

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JUMP SPARK NOT TO BLAME.

Many makers of automobile motors are imbued with the idea that the further into the cylinder the points of the spark plug project the better the results attained. In practice this is not true. If the spark plug were treated as a hot tube, and placed in the end of a short tube, screwed into the cylinder, better results would ensue. In a horizontal gasoline engine of well known make the spark plug was located in the cylinder head, which, while being water jacketed, was so recessed as to allow the end of the plug to almost project into the combustion chamber. It soon became covered with oil and soot. The engine did not develop as much power or speed as one of smaller stroke and bore in which the plug was in the valve chamber on the side of the cylinder.

An extension tube or bushing about three inches long was made of a piece of hexagon steel of suitable size, and with a hole through its center the size of the bottom of the thread on the plug, which was of French make. After putting this bushing in place and screwing in the plug, the engine was started. It ran at least 40 per cent. faster than before and was run continuously for over three hours without the plug failing. Upon removal the plug was found dry and clean, but the porcelain insulation was of a light brown color at its exposed end in the cylinder.

Another point which does not seem clear in the minds of many people is the insulation of the secondary wires, especially those leading to the spark plug. An automobile of French type was recently delivered to its owner by the local agent. From the start the spark plug did not seem to work properly, the cylinders missing fire with great regularity. While search was being made for the trouble, an interested bystander lifted the rubber tubes which contained the secondary wires to the spark plugs, almost touching the cylinder heads. Instantly the engine started at terrific speed, and continued to run so as long as the wires were kept far enough from the cylinder which, of course, was in connection with the grounded secondary wire. The automobile repair man who was investigating the trouble, was instantly seized with a bright idea, and procuring some short pieces of band iron he soon had some little iron crotches or forks made and attached to the cylinder heads to let the wires rest in and keep them away from the same. The motor was then started but ran as in the first place. Then the disgusted owner of the vehicle took it home and jump spark ignition got another blow. If a small bar or strip of wood had been located above the cylinder heads, from which the wires could have been supported, the trouble would have been eliminated. Supporting the wires in the small iron forks only gave the secondary a shorter cut to form a pathway for leakage back to its other grounded terminal.

A vehicle of American make but of French type, after its makers had announced that it embodied all the good points of the European makers and left out all the bad ones, and had incidentally thrown in, free of charge, a few good things of their own, was found to have trouble similar to the one just described. Everything looked all right under the hood. The wires were well away from the motor, but on closer examination in the rear of the dash and under the foot board and seat, the secondary wires were found to have been carefully encased with friction tape and made into a single tube or pipe for about three feet. This was removed, the secondary wires separated and the engine went to work all right.

One of the greatest and most frequent troubles of gasoline automobile owners whose motors are equipped with jump spark ignition, is the fact that many makers equip their vehicles with induction coils, in which the primary and secondary wires are not plainly marked positive and negative as they should. An expert can tell which is the positive primary and which the positive secondary by testing them, but an inexperienced person, after disconnecting the wires for some purpose of other, often gets them mixed, with the result that the plugs will spark feebly or probably not at all. If the terminals are plainly marked P+, P— and S+, S—on the case, there could be no mistake, or even P1, P2 and S1, S2. Almost anyone would know or could ascertain which were the right connections to make from coil to engine.

When it has been demonstrated as described in MOTOR AGE of August 21, in the article on an "Electro-Magnetic Vibrator for Induction Coil," that this device would operate a spark plug lying on a hard wood extension leaf of a desk, with air gap on all sides of it of not less than six inches, and the ground wire of the secondary three inches from the under side of the leaf, it is not to be wondered at that people have trouble with jump spark apparatus. These troubles are principally caused by the lack of knowledge of this subject. Only the other day the expert of a leading gasoline automobile concern, describing their jump spark apparatus to a supposed prospective customer, spoke in high terms of their "alternating" current induction coil. The Rumkorff type of coil or that used to produce the jump spark is the only form in use, or that can be made to give the required results for this form of ignition, and is classed as an "interrupted," not an "alternating" current.

RELIABILITY RUN RULES.

The committee in charge of the reliability run of the Automobile Club of America recently discovered that it could not carry out its original plan of allowing 15 miles an hour for the maximum speed of the journey without transgressing the law somewhere, for the reason that if the vehicles were held down to the actual speed required by law at all points of the journey the distance per hour would be something less than 15 miles. They have therefore established 14 miles as the maximum. The committee evidently contemplates that men who fall behind at some parts of the journey will make up lost time on other parts. There has been but one run

in which the promoters insisted on the observance of the law on all parts of the journey, viz., that conducted by the Chicago Automobile Club in August. On that occasion controls were established at every 15 miles. A contestant who fell behind at a control was not permitted to make up the lost time between subsequent controls. Failure to obey this regulation meant disqualification. It would be too great an undertaking, perhaps, for the Automobile Club of America to establish controls at such short distances, but as a matter of fact it is the only way to absolutely prevent infraction of the law and obtain unquestionable evidence about the performances of the vehicles throughout the trip.

Important Meeting of the A. C. A.

NEW YORK, Sept. 30.—At the meeting of its governors yesterday the Automobile Club of America was placed on record as favoring licensing of operators and supervision of construction of motor vehicles by the state. At the public hearing next week before the aldermanic committee the club will oppose the pending license ordinance drawn and presented by the wheelmen. Its counsel will show its illegality under the Highway Law (Chap. 531, Laws of 1901, Section 169A), which relieves owners or operators of private automobiles from paying license under any local law or municipal ordinance. The officers of the club will confine themselves to the common sense of the proposition and argue against the impracticability of a city license, which would require a separate license for every city and district in the state, through which an automobilist might desire to tour. It was further resolved to appoint a committee to act jointly with a similar committee from the National Association of Automobile Manufacturers in the matter. It is probable that this license question will be brought up at the meeting of the N. A. A. M. executive committee today, otherwise there can be no action by the makers until their next meeting, which will not be until November, since the October meeting will be forestalled by today's owing to the reliability run.

A nominating committee composed of Dave Hennen Morris, W. J. Stewart and J. M. Hill was appointed to name a ticket for the election on November 17. President Shattuck will not accept a renomination. "I have had the honor twice," said he to a MOTOR AGE man yesterday, "and think there should be a rotation in the office. I shall, however, be ready to do my share of whatever committee work the club may ask of me."

The suggestion that the club permit an endurance test for heavy trucks and commercial vehicles was considered. It was decided to confer with the trade at the show as to the most desirable form and date of the proposed test. The reliability run and the lateness of the season will, of necessity, postpone it until next spring.

J. De Forest Danielson, Boston; L. P. Mooers, Cleveland; George McFadden, Philadelphia; E. C. Hawley, Babylon, L. I.; John M. Shaw, Madison, N. J.; Alfred L. Simpson, New York; S. L. Schoonmacker, Plainfield, N. J.; C. E. Knoblauch, New York; and John Hickey, Mt. Vernon, N. Y., were elected active members.

Twelve Hundred Miles in Wisconsin.

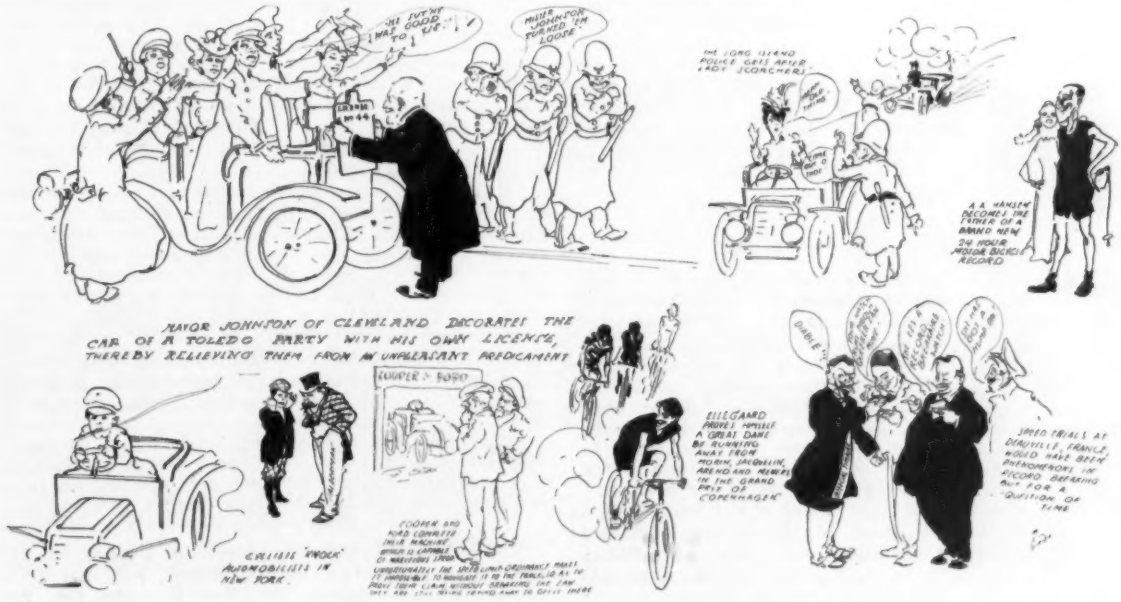
Louis T. Roenitz and Dr. C. W. Davis, of the Chicago club, have just finished a trip of 1,200 miles in Wisconsin, with the former's Peerless. The report is that the roads were sometimes bad, sometimes excellent and averaged fair. They went as far north as Green Bay. Referring to his experiences Mr. Roenitz says:

"I believe some of the horses we chased along the road were under the impression that they were pulling the machine. For 3 miles or so they galloped furiously ahead of us, and when forced to drop out they stood by the road and gazed at us in a puzzled fashion.

"The people were as ignorant of the ways of the chauffeur as the horses. Every town emptied itself to meet us. One farmer, or town philosopher, remarked:

" 'Tell me you fellers is doin' that fer a good time! Not much. No fool man's goin' to bump along over a gasoline tank fer the fun of it.'

"Our road lay through Wisconsin towns up as far as Green Bay. We returned by way of Milwaukee. I'd like to be starting out again."



PICTORIAL REMINDER OF EVENTS OF SEPTEMBER.

FINAL PLANS FOR RELIABILITY TEST.

Speed Reduced to 14 Miles an Hour—Additional Prizes Offered—List of Entries.

New York, Sept. 28.—As a matter of prudent precaution, to avoid any possible necessity of a violation of speed laws at any stage of the journey, the maximum speed standard of the awards in the A. C. A. reliability run, which occurs Oct. 9 to 15 inclusive, has been changed from 15 to 14 miles an hour. Accordingly first class certificates will go to those averaging from 12 to 14 miles per hour between controls and the president's and committeemen's reliability cups to those attaining the highest number of reliability marks, based on a maximum standard of 14 miles an hour. The maximum rate per mile becomes, therefore, 4.285 minutes, instead of 4 minutes. The entire schedule has been altered to conform to the new rate.

Subsequent consideration of the speed limits fixed by the committee at the legal rate showed that in an effort to attain the maximum of a 15-mile average the legal rate would have to be exceeded at some stage of the journey. This would be inevitable, even without taking into consideration the slow legal speed limits through towns—8 miles in New York, 12 miles in Connecticut and 10 miles in Massachusetts.

The quandary of the committee in the face of this situation was mentioned to a MOTOR AGE man, whose suggestion of a 14-mile limit as a solution of the problem without robbing the contests of any of its value or interest, was communicated to the committee and accepted. The mile an hour and the .285 minute per mile leeway thus provided for will enable the contestants not only to observe the slow limit through towns, but also the open country speed restrictions.

Greater interest and broader competition in the reliability feature of the test established by the offer of the president's cup have been assured by three additional reliability cups offered by the members of the committee to follow the president's award—one for second prize by Chairman W. E. Scarritt, another for third prize by G. F. Chamberlin, and still another for fourth prize, by John A. Hill.

Candidates as official observers, who have been accepted, have received their notification and instructions. They will be given the name of the vehicle to which they have been assigned ten days before the start. Business engagements will prevent President Shattuck's participation in the run as a competitor. He will, however, ride with the run as far as Boston. A large brigade of touring members will accompany the run.

To the list of unpenalized stops has been added stops to put on rain coats.

British Reliability Trials.

The reliability tests just closed in England show that the pace set was harder upon the vehicles than if a higher speed limit had been allowed. The limits were between 8 and 12 miles per hour, but at some points along the routes the speed had to be reduced to 4 miles to conform to the speed regulations in force in particular hamlets. The pumps in the cylinder water cooling systems of the gasoline cars could not be run fast enough to be of service, and the constant throwing in and out of the friction clutches and the slipping played havoc with that part of the car's machinery in almost every case. Some of the failures as a result of which cars failed to obtain the maximum marking of 500 for the road tests were as follows: Brakes, 21; transmission, 8; ignition, 2; valves, 5; batteries, 2; starting device, 2; motor, 7; broken pipes, 5; clutches, 1; spockets, 1. Out of seventy starters forty-four were awarded markings from a maximum of 500 downward for condition of the cars during and after the trials. The blue ribbon winners, all scoring the maximum number of points, were as follows:

Century tandem, M. M. C., two white steam cars, Gladiator, two Wolseleys, De Dion, Gladiator, Diamler and Panhard.

In the brake tests the successful carriages were the Baby Peugeot, Oldsmobile, Locomobile, Renault, M. M. C., Decauville, Brooke, Wolseley, De Dion and Clement.

Toledo Club Formally Organized.

The Toledo auto enthusiasts held their second meeting on the 27th and formed a permanent organization The report of the committee on by-laws was read and a constitution and by-laws adopted. The annual dues were fixed at $10, while to associate members, that is members residing beyond a radius of 50 miles from Toledo, dues were made $5 a year.

Dr. Louis A. Liffring was elected president; Dr. Charles P. Wagar, vice president, and George E. Palmer, jr., secretary and treasurer. The following trustees were named: Frank Hake, Ezra E. Kirk, George E. Palmer, jr.; J. N. Bick, George R. Ford, J. M. Foutz and Dr. Charles P. Wagar. The term of office of those elected is six months, or until April 1. The following committees were also appointed: Membership—C. M. Hall, chairman; V. L. Falardeau, George Troutt, J. N. Bick and J. M. Foutz. Auditing—Grant Williams, F. J. Landgraf, jr., and Frank Hake. Exhibitions, runs and contests—Guy R. Ford, chairman; George Troutt and George R. Ford. There was some talk of holding a race meet at the fair grounds in the near future, but it was held over to await the report of the committee on races. The next meeting was set for next Saturday night, Oct. 4.

President Airs His Views.

New York, Sept. 30.—President Shattuck, of the Automobile Club of America, on his return from his summer home yesterday, was interviewed by a MOTOR AGE man on a number of topics of interest to the fraternity at present.

"Nothing has been done about the Long Island speedway scheme this summer," said he. "Those interested in the project have had no meeting since we got together and talked it over last spring. It will require legislative sanction to condemn property, build bridges and cut subways, and we will have to get that before we can go any further. Even after that it may take two or three years before the great automobile highway project becomes a reality.

"I think we will have to come to a license system in the end," he continued, "and a national system of granting operators licenses would be ideal if it were constitutional. In its absence we should seek uniform legislation on the subject in the various states. I think the state and not the city should grant the license, otherwise tourists would have to take out licenses in every city through which they had to pass. I do not think members of the Automobile Club could spare time to act as examiners, as has been suggested. Our club will take up the consideration of this license question at once.

"We have discontinued our horse school at Lenox, but trained over a hundred horses before we closed it. The prejudice against automobilists among the Lenox residents, who are mainly horse owners, is dying out."

The Jefferson Automobile Livery Co., Detroit, has filed articles of association, capital $5,000, paid in; shareholders, Emil W. Snyder, 100; Wm. H. Mahs, 390; Wm. Beckman, 10.

LIST OF ENTRIES FOR NEW YORK-BOSTON RELIABILITY RUN.

No.	*Class.*	*Power.*	*Maker.*	*Entered by*	*Wt.*	*H.P.*
1	C	Gasol.	Ohio Automobile Co.	Henry B. Joy	2100	12
2	C	Gasol.	Ohio Automobile Co.	Harlan W. Whipple	2600	24
3	C	Gasol.	Ohio Automobile Co.	Adams & McMurtry Co.	2100	12
4	C	Gasol.	Ohio Automobile Co.	Adams & McMurtry Co.	2100	12
5	B	Steam	Prescott Automobile Mfg. Co.	Prescott Auto Mfg. Co.	1350	4½
6	B	Steam	Foster Automobile Mfg. Co.	Foster Auto. Mfg. Co.	1200	4
7	B	Steam	Lane Motor Vehicle Co.	Lane Motor Vehicle Co.	1800	9
8	B	Steam	Lane Motor Vehicle Co.	Lane Motor Vehicle Co.	1650	9
9	C	Gasol.	Pope-Robinson Co.	Pope-Robinson Co.	3000	24
10	B	Gasol.	Haynes-Apperson Co.	Haynes-Apperson Co.	1975	9
11	B	Gasol.	Haynes-Apperson Co.	Haynes-Apperson Co.	1900	9
12	B	Gasol.	Haynes-Apperson Co.	Haynes-Apperson Co.	1300	6
13	B	Gasol.	Autocar Co.	Autocar Company	1350	10
14	B	Gasol.	Autocar Co.	Autocar Company	1450	10
15	B	Gasol.	Ward-Leonard Electric Co.	Ward-Leonard Electric Co.	1550	10
16	B	Gasol.	Ward-Leonard Electric Co.	Ward-Leonard Electric Co.	1800	15
17	C	Gasol.	Apperson Bros.	Apperson Bros.	2500	16
18	C	Gasol.	H. Bartol Brazier	H. Bartol Brazier	2760	15
19	A	Gasol.	Torbensen Gear, Inc.	Torbensen Gear, Inc.	875	5
20	A	Gasol.	Geo. N. Pierce Co.	Geo. N. Pierce Co.	800	4½
21	B	Gasol.	A. Darracq & Cie.	Harold H. Brown	1600	12
22	A	Gasol.	Foster Automobile Mfg. Co.	Foster Automobile Mfg. Co.	850	8
23	C	Gasol.	Apperson Bros.	H. K. Browning	2600	16
24	B	Steam	White Sewing Machine Co.	Paul H. Deming	1450	6
25	B	Steam	White Sewing Machine Co.	Windsor T. White	1450	6
26	B	Steam	White Sewing Machine Co.	White Sewing Machine Co.	1450	6
27	B	Steam	White Sewing Machine Co.	White Sewing Machine Co.	1600	6
28	B	Steam	White Sewing Machine Co.	White Sewing Machine Co.	1600	6
29	C	Gasol.	Locomobile Co. of America	A. L. Riker	2200	12
30	B	Gasol.	J. Stevens Arms & Tool Co.	J. Stevens Arms & Tool Co.	1050	6
31	B	Gasol.	J. Stevens Arms & Tool Co.	J. Stevens Arms & Tool Co.	1050	6
32	B	Gasol.	Thos. B. Jeffery & Co.	Thos. B. Jeffery & Co.	1200	6
33	B	Steam	Grout Bros.	Grout Bros.	1300	6½
34	C	Steam	Locomobile Co. of America	S. T. Davis, Jr.	2400	10
35	A	Steam	Locomobile Co. of America	Locomobile Co. of America	985	4
36	A	Steam	Locomobile Co. of America	Locomobile Co. of America	985	4
37	B	Gasol.	Elmore Mfg. Co.	Elmore Mfg. Co.	1060	5
38	B	Gasol.	Elmore Mfg. Co.	Elmore Mfg. Co.	1060	5
39	B	Gasol.	De Dion-Bouton Co.	Kenneth A. Skinner	1200	8
40	B	Gasol.	Autocar Co.	H. B. Shattuck & Son	1350	10
41	A	Gasol.	Olds Motor Works	H. B. Shattuck & Son	800	4
42	C	Gasol.	Fournier-Searchmont Co.	H. B. Shattuck & Son	2200	8
43	C	Gasol.	Ohio Automobile Co.	H. B. Shattuck & Son	2000	12
44	B	Gasol.	A. Darracq & Cie.	F. A. La Roche	1700	16
45	B	Gasol.	H. H. Franklin Co.	S. G. Averill	1125	8
46	B	Gasol.	Knox Automobile Co.	Knox Automobile Co.	1400	8
47	B	Gasol.	Knox Automobile Co.	Knox Automobile Co.	1400	8
48	B	Gasol.	Knox Automobile Co.	Knox Automobile Co.	1400	8
49	B	Gasol.	"Fiat," Torino, Italy	C. H. Tangeman	1950	12
50	C	Elec.	Neftel Automobile Co.	Knight Neftel	3500	....
51	B	Steam	Stearns Steam Carriage Co.	Stearns Steam Carriage Co.	1500	8
52	C	Gasol.	Winton Motor Car Co.	Percy Owen	2150	15
53	C	Gasol.	Electric Vehicle Co.	Electric Vehicle Co.	2500	10
54	A	Gasol.	De Dion-Bouton Motorette Co.	Dr. Julius F. Hovestadt	950	6
55	B	Gasol.	U. S. Long Distance Auto. Co.	U. S. Long Distance Co.	1600	7
56	B	Gasol.	U. S. Long Distance Auto. Co.	U. S. Long Distance Co.	1600	7
57	A	Gasol.	Geo. N. Pierce Co.	Geo. N. Pierce Co.	800	5
58	A	Gasol.	Thos. B. Jeffery Co.	Henry C. Squires & Son	900	4
59	C	Gasol.	Winton Motor Car Co.	C. E. Proctor	2300	16
60	B	Steam	Grout Brothers	Grout Brothers	1300	6½
61	B	Steam	Grout Brothers	Grout Brothers	1300	6½
62	C	Gasol.	International Motor Car Co.	International Motor Car Co.	2600	16
63	A	Gasol.	Olds Motor Works	Oldsmobile Co.	800	4
64	A	Gasol.	Olds Motor Works	Oldsmobile Co.	800	4
65	B	Gasol.	Autocar Co.	Automotor Co.	1669	12
66	C	Gasol.	Panhard & Levassor	Leonard D. Fisk	2600	12
67	C	Gasol.	Fournier-Searchmont Co.	John Wanamaker	2100	8
68	B	Gasol.	Fredonia Mfg. Co.	Fredonia Mfg. Co.	1300	9
69	B	Gasol.	Fredonia Mfg. Co.	Fredonia Mfg. Co.	1300	9
70	B	Steam	Foster Auto. Mfg. Co.	Foster Auto. Mfg. Co.	1300	4
71	A	Gasol.	De Dion-Bouton Co.	Kenneth A. Skinner	900	6
72	B	Gasol.	Georges Richard	Manhattan Transit Co.	1400	....
73	B	Steam	Foster Automobile Mfg. Co.	Dr. M. A. Carman	1350	4
74	A	Gasol.	E. R. Thomas Mfg. Co.	Mechaley Bros., Stamford, Ct.	995	6
75	B	Gasol.	Thomas B. Jeffery & Co.	Mechaley Bros., Stamford, Ct.	1100	4½
76	C	Gasol.	Fournier-Searchmont Co.	John Wanamaker	2100	8
77	B	Gasol.	Thomas B. Jeffery & Co.	Columbus Auto. Exchange, Boston	1200	4
78	B	Gasol.	A. Darracq & Cie.	Col. W. P. Harlow	1700	16

THURSDAY, OCT. 9—New York to New Haven, 79 miles.

FRIDAY, OCT. 10—New Haven to Springfield, 68.6 miles; total, 147.6 miles.

SATURDAY, OCT. 11—Springfield to Boston, 96.6 miles; total 244.2 miles.

MONDAY, OCT. 13—Boston to Springfield, 96.6 miles; total, 340.8 miles.

TUESDAY, OCT. 14—Springfield to New Haven, 68.6 miles; total, 409.4 miles.

WEDNESDAY, OCT. 15—New Haven to New York, 79 miles; total, 488.4 miles.

Catechism *of the* Automobile Steam Engine and Boiler.

PART 2.

The slide valve of a steam engine is usually made not only long enough to cover both inlet ports, when the valve is in a central position, but to extend some little distance on either end over the steam ports. If the lips or edges of the valve were made line for line with the inlet ports when the valve is central, the valve would allow the steam to act with its full pressure on the piston, for the full length of its stroke, which is not an economical feature or one to be desired, except in locomotive or marine type of engines, when starting or working above normal capacity. To remove this objectionable feature the valve is, as previously stated, so constructed that the edges in the direction of its travel are made sufficiently long to cut off the steam at from one-quarter to one-third of the travel of the piston; then by increasing the travel of the valve, it can be made to operate so as to take steam from these limits up to practically the full stroke of the piston. This is known as the "lap" of the valve. Figures 8, 9, 10 and 11 show four views of the slide valve, and steam ports and exhaust opening, in the positions necessary to allow of the admission, cutting off and exhaust of the steam supply, with diagrams showing the relative position of the crank and eccentric during these operations.

Figue 8 shows the valve in the act of admitting steam to the cylinder through the port 1, when the piston P is at the end of the stroke. It will be noticed that the valve has opened slightly before the piston has reached the end of its stroke. This is done for two reasons, first to cushion the piston at the end of the stroke so as to avoid a blow or jar from the sudden reversal of its direction, and secondly, to allow the steam full and free action upon the piston as soon as it commences to move, on its return stroke. The exhaust port U is at this time in communication with the opposite end of the cylinder to that at which the steam is entering, by means of the port 2, and the piston during its return stroke pushes out the exhaust steam. In the diagram on the right hand side of Figure 8, the crank F is shown at the extreme end of its throw or on the left dead center, while the eccentric F is some distance beyond the center of its throw. The valve is shown in Figure 9 at the end of its travel, the port 1 fully uncovered, the piston at about one-fourth of its travel, and the exhaust port U in full communication with the other end of the cylinder by means of the port 2. In Figure 10 the piston has almost reached the end of its travel and the valve has just closed the port 1, thus preventing further entrance of steam. Figure 11 shows the piston at the end of its travel, the port 1 in communication with the exhaust U, and the opposite end of the piston in communication with the steam supply through the port 2, which the valve has just uncovered.

In calculating the operation of the slide valve, there are two important items to take into consideration—the "lead" and the "lap" of the valve. The "lead" of the valve is the amount of travel beyond the center of its stroke the valve is given, so as to allow the valve to be open at, or slightly before, the end of its stroke, as shown plainly in the diagram on the right hand side of Figure 8. Accordingly, as this is regulated the point of cut off of the steam can be varied throughout the stroke. The lead of the valve may be changed in two ways, either by increasing or decreasing the amount of the "lap" on the valve, or by varying the travel of

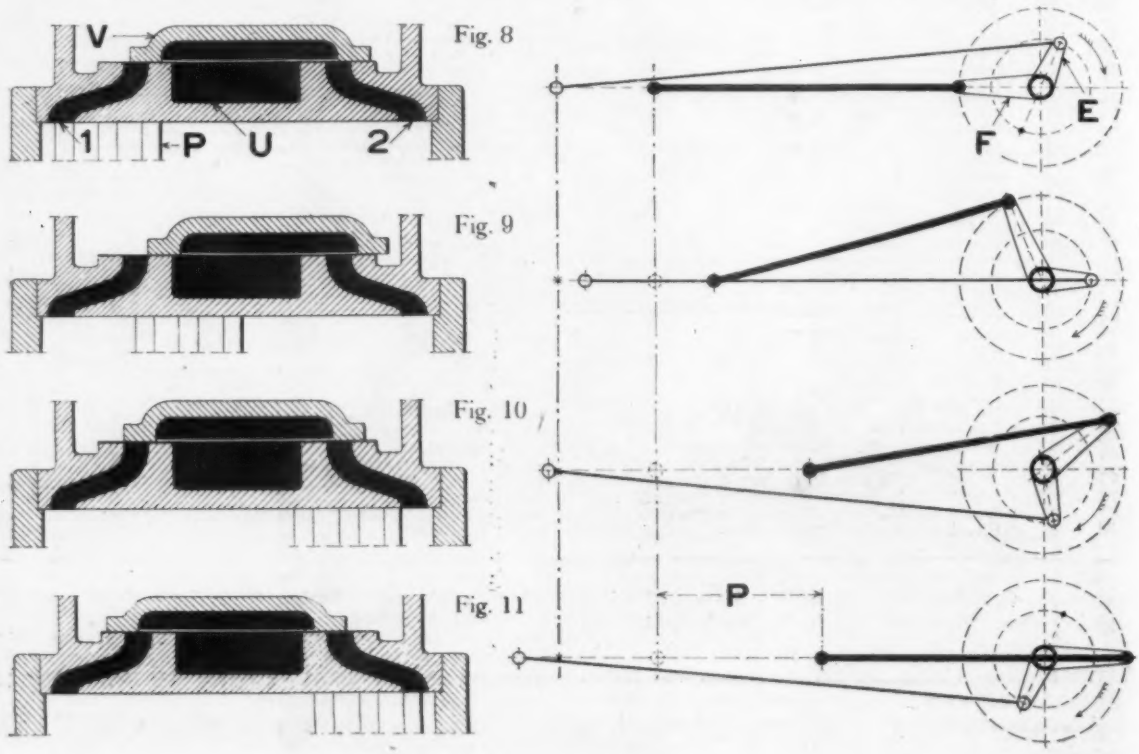


Fig. 8

Fig. 9

Fig. 10

Fig. 11

the same. The "lap" of the valve as previously described is the amount added to the length of its lips or edges, so as to cut off the steam at some point before the piston has reached the limit of its travel in either direction, thus increasing or decreasing the time during which the ports are covered by the valve, securing the desired efficiency and consequent economy of the expansive energy of the steam.

In the type of steam engine under consideration it is necessary as stated in the previous chapter, that it shall be capable of being not only self starting, but reversible. In addition to these features the construction necessary to attain this end brings into play another and very essential one, that of controlling the speed of the engine by varying the point of cut off, that is to say by cutting off the steam supply in the cylinders at any point from one-third to practically the full travel of the piston. The mechanism which accomplishes this and which, as before stated, is known as the "Stephenson" link motion, is shown in Figure 12. The object of the link motion was primarily intended for use in reversing the direction of rotation of the engine, but it was found to have another and far more valuable function, that of being able to use the steam expansively, by providing a means for cutting off the steam at almost any point less than the full travel of the piston, which is accomplished by reducing the travel of the slide valve. By reference to the drawing it will be seen that two eccentrics E are used, suitably located upon the crank shaft J, and connected with the link L near its ends as shown by means of the eccentric rods. In the drawing the link motion is shown in its central or dead position. The link block 3 is carried by a jaw in the end of the valve rod W, which jaw is over one side of the link L. The link L is connected with the rocker arm H by means of the rod M, and the movement of the link is effected by means of the arm 5 on the shaft 4, which also carries the rocker arm M, through the jaw 6, attached to the rod 7. When the link is shifted from the position shown to either end, only the eccentric whose rod is opposite the link block imparts its motion to the valve, but when in any intermediate position, between the center and either end of the link, the difference between the throw of both eccentrics is imparted to the valve, in a greater or less degree, according as the link block is distant from the end or center of the link. The rod 7 is connected with a lever at or near the operator's seat, which works in a notched-quadrant, so as to be set in any desired position and securely held there.

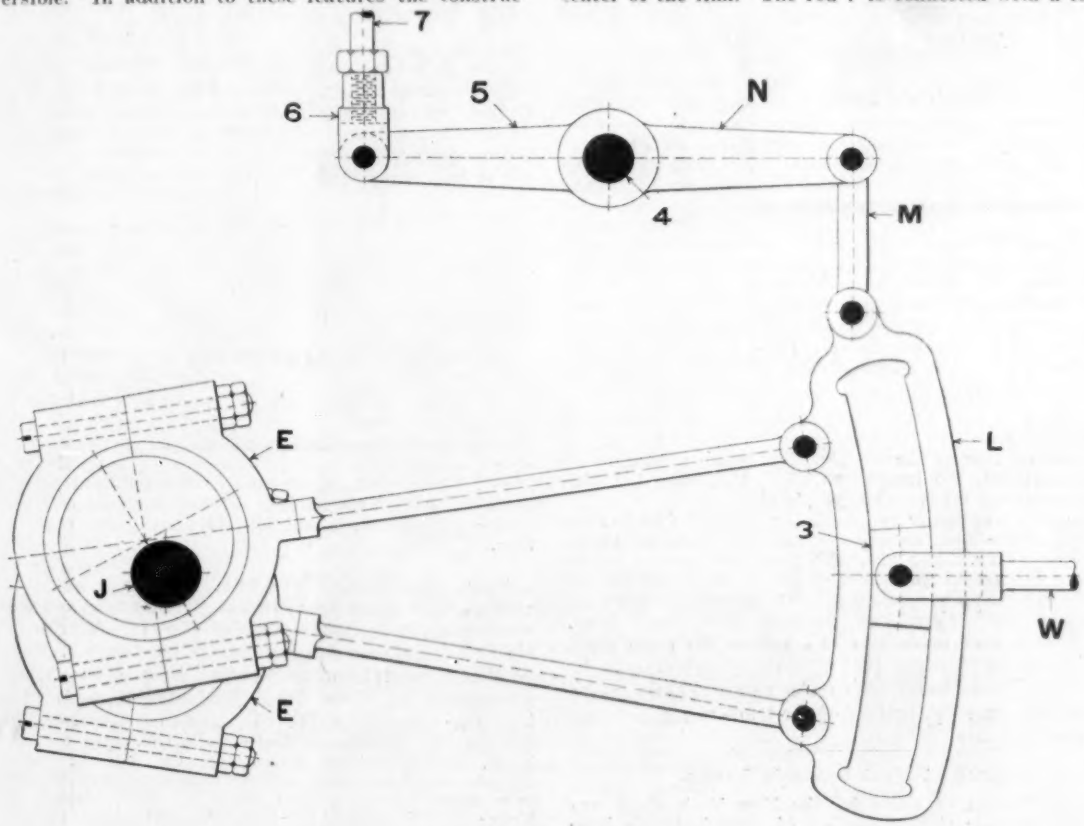


Fig. 12.

(To be continued.)

Electrical Speed Indicator.

M. Hospitalier has recently invented a novel form of speed indicator which is specially applicable to motor cars. It is an electrical arrangement and depends on the principle that a voltmeter deflected by interrupted currents will have its needle more or less displaced, according to the rapidity of the current impulses. A revolving commutator is connected with some revolving part of the car and the current from a battery, which may be the battery employed for working the ignition apparatus, is led in series through an induction coil, the revolving commutator and a voltmeter. The deflection of the voltmeter under these circumstances increases with the speed and may furnish a tolerably accurate indication of the rate at which the commutator is revolving, and therefore of the speed of the car.—Automotor Journal.

Another Plant in the Hotbed.

Cleveland, Ohio, Sept. 29.—The Noble Automobile Mfg. Co. is the latest concern to step into the line of Cleveland manufacturers who are actually ready to deliver goods. This company was organized some months ago with A. C. Meader, president; A. F. Monroe, secretary-treasurer, and J. C. Noble, vice-president and general manager. A light runabout of the gasoline type will be the chief production, although several other styles will be built. A number of experimental machines have been built in a well equipped factory at 1174 Hamilton street, and this week the first lot of stock machines are being put through. The car, or more properly speaking, carriage, is equipped with a single cylinder 6½-horsepower motor. The company decided to depart from the usual pattern of body adopted for this class of vehicles and will follow as closely as possible the lines of the piano box carriage. The radiating flanges are embodied with the water tank, which is below the rear portion of the vehicle. There are a number of novel features, the inventions of J. C. Noble, but the company is not ready to go into details.

The Noble company can probably lay claim to having furnished the first automobile scissors grinding outfit in the country. The idea was presented by an enterprising implement sharpener, a friend of a member of the company. The company built a machine with its standard mechanism and running gear, sans body. The only change made was to lengthen the main shaft of the engine in order that a sprocket wheel may be attached, by means of which the emery wheels, grind stones and other equipments of the trade mentioned may be operated.

Space at Next Season's Shows.

The allotment of space for the New York show was so quietly made that a number of manufacturers have been left out in the cold, with a possibility of remaining there permanently. The original diagram showed a division of space very similar to that of last year, but the applications were so largely in excess of the amount of space available that a rearrangement was considered desirable. This was effected by largely reducing the aisle space, and accommodation was found for all those makers whose applications were in hand on the day of the allotment. Later, however, other applications were received and it was necessary for the managemnt to advise them that the space had all been taken. Eventually it was decided to throw open the restaurant, as was done at the first New York show, and therein probably will be found sufficient space for a majority of the applicants.

This incident has given rise to the statement that all of the available space at Chicago has been allotted also. There is no truth in this story. The printed matter has not yet been issued, and there will be no allotment of space for at least two weeks. Sufficient notice will be given to enable all manufacturers east and west to participate in the first allotment. There is not the same danger of overcrowding as at New York, the available space on the ground floor being much larger in the Coliseum than at Madison Square Garden. The allotments on the ground floor at New York have been made to the following: Mobile, Foster, Peerless, Packard, Ohio, Loomis, Moore, Meteor, Automotor, Olds, White, United States, Long Distance, Autocar, Knox, Pan American, International, Smith & Mabley, Locomobile, Baker, Waltham, Pierce, Vehicle Equipment, Winton, Ward Leonard, Berg, Jeffery, Thomas, Crest, Spalding, Upton, Covert, Studebaker, Pope-Robinson and Fournier-Searchmont.

Space in the gallery has been secured by the Diamond, Hartford, Wetsel, Miller, Dow, Whitney, American Roller Bearing, Standard Welding, Buffalo Gasoline Motor, Atwood, Dietz, Automobile Co. of America, Stevens, Gray & Davis, Rose, Veeder, Goodrich, Dixon, Badger Brass, Baldwin and Metallic Rubber Tire.

Among the people who have not yet secured space are the National Vehicle Co., of Indianapolis, and Apperson Bros., of Kokomo. The former complains that the rule of "first come, first served" is unfair, inasmuch as the mailing of the diagrams to all makers on the same day give eastern concerns an advantage of from 24 to 48 hours. The National company expected and still expects to make a handsome display, and, as a member of the association, is disposed to insist upon consideration.

New York, Sept. 30.—The following automobile makers have taken space in the restaurant annex of the coming Madison Square Garden show: Electric Vehicle Co., Hartford; Automobile Co. of America, Marion, N. J.; Prescott Automobile Co., New York; Webster Automobile Co., New York; Duryea Power Co., Reading, Pa.; Conrad M. C. Co., Buffalo; Century Motor Vehicle Co., Syracuse; Hoffman Automobile Co., New York, and Cleveland Automobile Co. (A. L. Moore), Cleveland. Additional part and sundry concerns to secure space in the gallery are: C. F. Splitdorf, New York; New Process Raw Hide Co., Syracuse; Firestone Rubber Co., Akron, O., and Post & Lester Co. (Veeder Mfg. Co.), Hartford Conn.

Recent Issues From the Patent Office.

No. 708,579, to John Nutry, of Midlandpark, N. J., covers a driving gear in which the reciprocating action of the piston is applied directly to the driven axles or roadwheel. The device comprises two oscilating clutches which are reversible in action, in order that the direction of drive may be reversed. Arrangement is also made for variation of the extent of movement of the clutches without affecting the action of the piston, so that the number of revolutions of the shaft in proportion to the strokes of the piston may be varied at the will of the operator.

No. 708,793, to Henry F. Borbein, of St. Louis, Mo., assignor to G. V. Brecht Butchers' Supply Co., of the same place. The object of this invention is to provide means for holding the driving axle of a motor at a uniform distance from the driving shaft, thereby preserving the proper tension in the driving chain. The device was described in detail and illustrated in Motor Age Sept. 18.

No. 708,949, to Edgar A. Wright, of Canton, Ohio,

WHITE STEAM CARRIAGE

MAKES NEW WORLD'S RECORDS

ON September 16th, at the Glenville track, near Cleveland, the White Automobile established new records for steam carriages for all distances from two to ten miles. At the same meeting the WHITE also captured the 5-mile race, open to steam cars of all weights and makes.

New and Old Records for Steam Vehicles:

NEW:

Made by Rollin H. White, Cleveland, Ohio, on September 16, 1902.

2 miles	2:44 1-2	4 miles	5:24
3 miles	4:03 4-5	5 miles	6:43 1-5
10 miles			14:59 1-2

OLD:

Made by George C. Cannon, at Providence, R. I., October 17, 1901.

2 miles	4:01 3-4	4 miles	7:55 1-4
3 miles	6:00 3-4	5 miles	9:40 3-4
10 miles	(Rollin H. White)		19:05 4-5

Detroit, Mich., Oct. 10, 1901.

The WHITE is a Thoroughbred

Speed is only one desirable quality of an automobile. White Steam Carriages have made the unparallelled record of winning out in every endurance test in which they have been entered—coming through with soldier-like precision. The White steam generator is absolutely non-explosive, gives pressure in five minutes from cold water, and once in motion is self-regulating. In touring, the WHITE will make 100 miles without adding a drop of water or fuel to the original supply.

Write for full particulars, including Prof. Thurston's report on our steam generator, and the official reports of important endurance contests.

White Sewing Machine Co.

(Automobile Department)

CLEVELAND, OHIO.

22 Union Square, New York, N. Y.
509 Tremont Street, Boston, Mass.
300 Post Street, San Francisco, Cal.
609 Main Street, Buffalo, N. Y.
12 Woodward Avenue, Detroit, Mich.
300 Rose Building, Cleveland, Ohio.

assignor to the Aultman Co., of the same place, covers a heavy truck for freight purposes. The leading features are the driving system, which is so arranged that power may be applied to all four wheels or to the front or rear only under control of the operator. The motor acts directly on the drum of a differential gear, the large gear-wheels of which are loosely journaled on a shaft lying longitudinally of the vehicle, the outer sides of these gears being in the form of disks for a friction gear. Parallel to the disks are two shafts, each bearing a friction wheel, splined thereto, and bearing against the disks. On the end of these shafts are sprocket wheels, from which power is transmitted by chain to the front and rear wheels, the speed of which may be varied by moving the friction wheels laterally across the disks. Arrangement is made whereby the friction wheels move across the face of the disks in unison, thereby giving to both sets of road wheels the same speed, but either friction wheel may be disengaged from the disk, thereby releasing the set of wheels connected therewith from driving connection with the main gear.

Nos. 709,125 and 709,126, to John Unser, of Carthage, N. Y., cover modifications of a vehicle brake, the principle being the same in all. The feature of the brake lies in the method of application, which is a cylinder fitted with a piston, which is connected with the brake so that the outward movement of the piston applies the brake. The device is intended for use with steam vehicles and is actuated by steam admitted to the piston from the boiler.

Toledo Houses Have Combined.

Toledo, O., Sept. 29.—Burton O. Gamble, of the Toledo Motor Carriage Co., has closed negotiations for the Oldsmobile stock and warerooms in the Ashley block and the company has passed into the hands of the Toledo Motor Carriage Co. The latter company will take possession on October 1. This gives the Toledo company practically a monopoly of the retail automobile business of the city, as it is the intention to close the Oldsmobile warerooms in the near future and handle the combined business from the plant of the Toledo Motor Carriage Co. The company is putting up a huge building on Michigan street, just back of the Ashley block, to be used exclusively as an automobile warehouse and as salesrooms. Fine offices will be equipped therein and every convenience and modern appliance connected with the business will be installed.

White Will Make Delivery Wagons.

Cleveland, Ohio, Sept. 29.—The White Sewing Machine Co. is preparing to market a new delivery wagon, as a companion piece to its well known phaeton. A number of these wagons are under construction and the first two completed have been shipped to New York to take part in the New York-Boston and return endurance contest. The delivery wagons have a carrying capacity of about 1,500 pounds of packages, having two shelves. They are equipped with a flash boiler, somewhat larger than the one in the phaeton and the engine—8 horsepower—is correspondingly larger. The running gear and general equipment is somewhat heavier, but in general principles the machine is the same as the phaeton. When desired the delivery wagon is equipped with the new condensing outfit which gives the White the advantage over all other steam carriages. Recent experiments have shown that the condenser effects a remarkable saving in the water consumption. By its use it is claimed a machine will travel from 150 to 200 miles, according to the operator and condition of roads, on 20 gallons of water, while without the device the same amount of water lasts only about 30 miles. The outfit is simple, consisting of coils similar to the radiating coils on a gasoline vehicle, attached to the front of the machine, and a pump attached to the cross head of the engine. The steam from the exhaust is carried by piping to the top of the condenser and passing through the coils it is condensed and is sucked by the pump directly into the water tank. There is a filtering device which separates oil and impurities, and that is about all there is to it.

A representative of the White company, speaking of the remarkable showing made by the White racer at the recent Cleveland meet, stated that contrary to the general impression, the so-called "racer" was not, strictly speaking, a special machine. The engine is identical with that used in the standard White phaeton, while the boiler is of the larger pattern used in the delivery wagon above mentioned. Instead of side draft, the machine was equipped with twin vertical stacks, directly over the burner, hence the draft was, in a sense, forced. For the race, the air pressure was pumped somewhat higher than usual. The body was, of course, special, but otherwise the parts were taken from standard stock. The machine was put through in a hurry, as was evidenced by the fact that it was not finished. The Whites in the endurance run will be driven by Rollin White, Windsor White, George S. Waite and Paul Deming, all of whom have taken part in similar events.

Smith & Mabley's Enlarged Quarters.

New York, Sept. 29.—Smith & Mabley have long found their quarters at No. 513-515 Seventh avenue insufficient for the display and storage of their Panhard, Renault and C. G. V. machines, though the building is 50x100 feet and has two stories. They accordingly have secured the Thirty-eighth street corner adjoining, which will add a 50x50 ft. ground space. A large and up-to-date garage will be erected thereon and devoted mainly to the Charron, Girardot & Voigt Co. of America branch of the business. Mr. Smith told a MOTOR AGE man last week that matters were progressing very satisfactory at the Rome factory and that within a fortnight delivery of the new American vehicles would begin.

Clever Advertisement in Rhyme.

The following is attributed to Mr. Gardiner, of the White Sewing Machine Co.'s 'Frisco branch:

Once a conscientious person thought he ought to own an auto,
Sought an auto, bought an auto, just because he thought he ought to.
Then the auto, sought to auto, as an auto ought to auto,
But he found that naught the auto ought to do was what it sought to.
Then a crafty agent fooled him on another make of auto,
Newer model, later pattern, one just out for 19—02,
Thought he'd bought an 0—2 auto which would run as autos ought to.
But he found a little later that the bought new 0—2 auto
Wouldn't auto aught's he thought an 0—2 auto ought to auto.

Then he bought an 0—2 White,
And his troubles all took flight,
For it worked exactly right—
The Auto King, the 0—2 White.

Now he autos just the auto which a wise man ought to auto,
And the auto always autos as an auto always ought to.
Never will this auto fail him, never will he say this auto
Wouldn't auto aught's he thought an 0—2 auto ought to auto;
For he has an 0—2 auto which to auto is delight—
The Autocratic, Automatic, Auto King, an 0—2 White.

German-American Company's Car Ready.

New York, Sept. 29.—The German-American Automobile Co., 134 West 143rd street, has completed its first gasoline car. It was designed and built by John L. Schultz and follows closely the lines of the Mercedes. At a normal speed of 900 revolutions it develops 24 horsepower. Its weight is 2,600 pounds. The transmission includes a novel lever locking device, with the aid

of which it is claimed that gear stripping is impossible. It has four speeds forward and one reverse. The gasoline tank has capacity for 35 gallons and the water tank ten gallons. There is an emergency expansion brake, which is applied to each rear wheel. A band brake on the counter shaft lowers its speed, being operated by the pedal for throwing out the clutches and enabling a hand break in the main shaft in connection with the pedal for shifting gears. "We are on the lookout for a large factory," said James MacNaughton, the general manager, to a MOTOR AGE man. "Five members of the Automobile Club of America have formed a syndicate to have five of the machines built for them, which will be of from 50 to 70 horsepower. I have tested the machine by rides to Orange, N. J., and to Stamford, Conn., and it has shown a range of speed from 6 to 40 miles an hour."

NEW YORK, Sept. 30.—There is a row on in the German-American Automobile Co., among the main stockholders. James Macnaughton, the manager and alleged chief creditor, filed a petition in bankruptcy on Friday. "We are merely trying to force out Mr. Robert Bonner and his associates," said Mr. Macnaughton yesterday to a MOTOR AGE man. There will be a reorganization and the company will soon continue to build vehicles."

Ward Leonard's New Pattern.

New York, Sept. 29.—The Ward Leonard Electric Co. will put out a 24 horsepower gasoline machine following closely the lines of the Renault. The first is on view at an uptown garage.

Notes of the Industry.

The Oakman plant at Greenfield, Mass., is again to be occupied by an automobile manufacturing plant.

The plant of the Belknap Motor Co., of Portland, Me., has been sold to the Gilmore Electric Co., of Boston.

The Geneva (O.) Automobile & Mfg. Co. will make gasoline as well as steam machines for next season.

The Electric Steel Co., of Waukegan, Ill., is considering the addition of an automobile department to its business.

The directors of the Niagara Motor Vehicle Co., of Buffalo, have taken the necessary legal steps to dissolve the corporation.

The Westerfield Motor Co., of Anderson, Ind., which was recently reorganized, has just closed a lease for a suitable factory.

The Rock Falls State Savings Bank has levied on the property of the Sterling (Ill.) Automobile Engine Works to satisfy a mortgage of $800.

The F. C. Dowd Co., at present at New Castle, announces that they will move to Salem, O., and there engage in the manufacture of automobiles.

In the Department of the Seine, which includes Paris, there are 7,807 registered automobiles. The number of persons licensed to operate them is 13,000.

The Combination Tire Co., with a capital of $100,000, has been incorporated in New York state by W. R. Harris and W. B. Tuttle, of Akron, O., and Thos. Clark, of New York.

The Columbus Motor Vehicle Co., organized under the laws of Delaware with $50,000 capital, has been licensed to do business in Ohio. G. W. and C. W. Groff are president and secretary respectively.

Robert J. Raymond has been appointed receiver for the Hydra Double Battery Co., of Nos. 70 and 72 Reade street, New York, manufacturer of semi-dry batteries. The liabilities are $62,000 and assets $4,000.

The International Wheel & Rubber Tire Co., whose incorporation with a capital of $3,000,000 was recently noted, will establish a plant in New Brunswick, N. J., and will, it is said, give employment to 300 men.

The Board of Trade at Shelby, O., is seeking to interest some automobile manufacturer in the plant formerly occupied by the Shelby Cycle Co., which at one time employed 500 men, but has been lying idle for over a year. The Shelby people are willing to offer a reasonable bonus.

According to a computation made in New York, Ohio produces more automobiles than any other state, Cleveland ranking first and Toledo second.

Westfield, Mass., is in mourning because the branch of the American Bicycle Co. there has suspended operations temporarily, doubtless on account of the receivership.

The Mayor of Danville, Ill., has vetoed an automobile ordinance, with some of the provisions of which he was dissatisfied, and which he thought could not be legally enforced.

The 1903 model of the Knoxmobile which will be ready for examination about October 15 will be practically a duplicate of this year's machine, with a few minor changes. Wood wheels instead of wire will be used, and the engine will be a little more powerful. In general appearance the body will be the same as the 1902 model.

Charles G. Glidden, of Lowell, Mass., has arrived in Paris, having completed a trip of 5,000 miles in his 16-horsepower Napier in 38 days. He covered 2,700 miles in France, 997 in Switzerland, 608 in Germany, 508 in Italy, 250 in Austria, 132 in England and 30 in Spain. This is probably the most comprehensive tour of which there is a definite record.

The Interstate Transit Co., which operates a line of automobiles over the bridge from St. Louis to East St. Louis, carried during August 114,283 passengers. Its gross earnings were $11,500, or an increase of $1,000 over July. The company commenced business in February, in which month it carried 44,000 passengers. The company is about to extend its lines and the number of vehicles in operation.

Barry & Hayes, whose garage on West 58th street, New York, is one of the best known in the city, have been appointed New York agents for the Knickerbocker car made by the Ward-Leonard Electric Co. Mr. Barry says that the firm is building a light racer for next season which in appearance will be a duplicate of the Renault which won the Paris-Vienna race. It will be fitted with DeDion motors and have about 20 horsepower.

The Columbus (O.) Buggy Co. has just completed its first automobile, which has been shipped to Detroit to be exhibited at the annual convention of carriage and vehicle manufacturers now in progress. The new machine is a four-passenger vehicle, equipped with two Westinghouse motors of 5-horsepower each. It is furnished with Timken rollers, ball-bearing axles, artillery hubs, wood wheels and cushioned rubber tires, and has a capacity of from 15 to 25 miles an hour.

C. H. Minchin & Co., of Greenwich, Conn., have made additions to their repair shop, which is now 40 feet in length, and are ready to handle all sorts of repair work. The firm is also preparing to make a kerosene burner, which is said to be absolutely devoid of smoke or odor. The inventor claims to have toasted bread and used the burner to heat flatirons without disagreeable results in either case. He has used a Locomobile with one of these burners, and says that he can keep up 200 pounds of steam with only 20 pounds of air pressure without trouble. Minchin & Co. expect to place the device on the market shortly.

THIRTEEN HUNDRED MILES IN A WINTON

It would be in line with the object of the New York-Boston contest and the suggestions of Mr. Duryea in his articles concerning a liability contest, to relate my experience and observations resulting from about 1,300 miles of country riding in a Winton touring car. This car was received from the agent at Toledo, April 24, 1902. Some days earlier the carriage had been delivered to the agent by the manufacturers, but it developed some fault and the factory sent an expert to look over it. In casting the balance wheel a poor casting had been made and a porous part was located at the point where the main shaft goes through the balance wheel. In cutting the key seat it happened that it was cut at this particular point. In running the machine the weakness was not developed, but in Toledo the casting began to crumble and the balance wheel loosened. It was found necessary to replace it. This illustrates one of the advantages of purchasing through a local agency where they developed this trouble which might have been serious for an inexperienced purchaser. An operator was furnished to accompany me home, making a trip of 68 miles through some sand, but over otherwise good roads, with but three stops, two voluntary. The one involuntary stop was the result of skidding into a ditch from the top of a freshly graveled pike road. Many of the roads in this vicinity are rounded up so that it is quite a feat of balancing to drive along the top at any speed. In this case the gravel was so soft that the weight of the machine crumbled one side of the track away and in order to get back on the road it was necessary to tighten the low speed clutch and back further into the ditch to get a start. This was the only time on the entire trip that I used the low speed, having come through several miles of deep sand in the vicinity of Swanton, Ohio, on the high gear, and over sand which a year before had stalled me in a two-seated Locomobile.

The roads in northern Ohio and Indiana, where I have done most of my driving, are uniformly quite good. There are but few hills and on my numerous trips, usually with three other passengers, I have found myself able to climb all hills on the high gear. The steepest hill in this vicinity is 16 per cent and I have frequently climbed it on the high gear with four passengers, all of them in the 200 pound vicinity as to weight, without any trouble. The method of control of speed seems to me ideal. The carriage responds as quickly as a steam carriage and in a very similar manner. I seldom use the low gear except for starting. On one or two occasions when in deep sand or in mud I have been compelled to run on the low speed, but largely as a matter of protection as the speed which I might have accomplished with high gear would have been too great for me to control it in the mud.

In speaking of the Winton touring car I feel that it can be said that it is uniformly good and by mentioning a few of its faults which have been observed, I do not wish to be considered as criticising it unreasonably or to say that the carriage is anything but good.

In the first place, I found the steel tube running from the steering wheel to the floor to be so light that it bent. This I had replaced by a solid steel bar of the same size which has never given trouble. The tonneau was uncomfortable. This I knew before I purchased the machine and I made arrangements with the agent who sold me the machine to allow me a certain amount for altering it. I had the back extended up 5½ inches; the door extended up to the same height and upholstered and a moveable seat placed between the two permanent seats. This makes one continuous seat across the back and the back seat is now, if anything, more comfortable than the front, and this change has certainly added much to the appearance of the carriage.

The springs I regard as the weakest point in the entire construction. I have broken them several times and there seems to be no spring in them. It is only with a very heavy load that one gets any effect out of the springs. The car rides almost as comfortably after they are broken as before. I think a full elliptical spring would be a marked improvement and that it should be at least 40 inches long. However, my experience has been limited, but I know that the full elliptical spring on the Locomobile which I owned has frequently been depressed until the spring came together without breaking and when riding at the same rate of speed the Locomobile was much more comfortable.

There has been little trouble with the spark plugs; they have worked well uniformly. I ran my machine over 400 miles without giving them any attention. The trouble I have had has been with the circuit breaker. It has required frequent adjustment and is constantly becoming covered with oil, which leaks out around the shaft. I think that this feature of the car can be improved. However, I recently met an owner of another car like mine, who stated that in 800 miles he had adjusted his circuit breaker but twice. Most of my trips have been to points not more than 60 miles distant from this town and frequently I have made the trip without any involuntary stops. Only this week I went to Fort Wayne, Ind., a distance of 45 miles, in 8 hours and 8 minutes without a stop. The roads were somewhat improved the following day and I was returning at a speed that would have resulted in the entire trip being made in less than 2 hours. I had made the first 19 miles in 38 minutes, when a tire burst and the balance of the trip was made on a rope tire.

I do not know whether a rope tire is new to automobile owners or not, but it worked so well that I believe it is worth mentioning. I took off the tire after it burst and inside of the rim placed two 1 inch ropes; this nicely filled the space in the rim. On the outside of this I placed a quarter inch rope, being careful that I cut the rope the exact length to reach around the wheel, and wired this on with hay baling wire. The wire would last for about 10 miles and I ran along at a speed of from 8 to 10 miles an hour.

Between the upper and lower halves of the crank case a rubber gasket is fitted, to make the crank case oil and air tight. I have had much trouble with this gasket blowing out and when it does blow out the noise of the engine is increased remarkably. The cases were not fitted properly and although I have taken sheet lead and attempted to fill up the space so that the bearing would be the same all the way round, I have not succeeded in doing so. I have used four gaskets in this attempt, but without success as yet.

The car ran 1,000 miles with practically no adjustment and the only serious trouble was from getting an inferior grade of gasoline. I am now using the stove gasoline manufactured and sold by the Sun Oil Co., of Toledo, and although it costs less than the Standard Oil Co.'s gasoline it gives much better results. At the end of 1,000 miles, like "the one hoss shay," there seemed to be many difficulties arise. The wiring gave out; I found that the wire had broken off in several places from vibration so that there was a very poor contact; the batteries became exhausted at this time. I should have foreseen that they would and at the end of 800 miles shall replace the present batteries. The pneumatic speed control failed to work and the engine could not be slowed down. It would run at a high speed and the fault seemed to be in the pump. I had the entire machine overhauled and repaired where necessary

at an expense of $30 and the car now runs as well as ever.

One of the most charming features of the car is the fact that it can be operated at a low speed with practically no noise and but little vibration and on good roads I can ride behind a walking horse, on high gear and with so little noise that the driver of the horse will not notice me.

The muffler is very effective as to noise, but I believe it developes a good deal of back pressure. There seems to be about one-third more power when the muffler is cut out; that is, the car responds much quicker. I have never given it a trial over a measured distance with the same load, so may be wrong in my estimate. With four passengers and full tanks I have made a mile in 100 seconds with the muffler cut out, but without any preliminary preparations. This was on a mile track and made without advancing the spark. I tried a second mile with the spark advanced and made exactly the same time, which would indicate that advancing the spark had but little effect in this particular engine.

When the car was received there was an opening in the floor of the tonneau through which a part of the brake connections extended. Through this opening the grease and dirt would come and a lady's dress was sure to be spoiled. A small box was made to cover this and it thoroughly protects the occupants without interfering with the brake mechanism. This should have been done when the car was built.

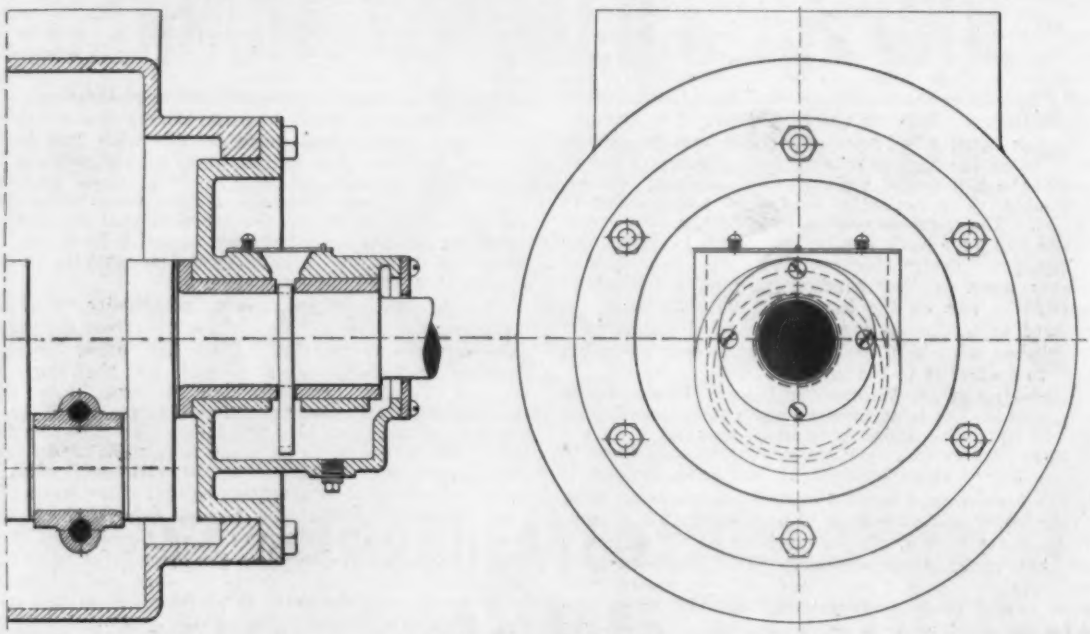
I find the weight with tanks filled to be distributed as follows: Front wheels 940 pounds; rear wheels 1,320 pounds; total, 2,260 pounds.

Good Roads Advocates Reach Chicago.

On Sept. 5 a Toledo steam dos-a-dos, operated by George Soules, of the Toledo factory, and carrying Col. Wm. L. Dickinson, treasurer, and L. C. Boardman, second vice-president, of the New York and Chicago Road Association, and Mrs. Boardman, left New York on a trip to Chicago over the route which, it is suggested, the road shall eventually follow. The route was by way of the west road up the Hudson, to Tuxedo, Newburg and Kingston, thence across the Catskills to Woodstock, Pine Hill, Binghamton, Elmira, Hornellsville, Salamanka, Jamestown, Erie, Cleveland and Toledo. The party reached Chicago late Saturday afternoon the actual running time having been 110 hours. The carriage stood the journey without a hitch, except the replacement of tires. The purpose of the trip was to interest the authorities and others along the route in the movement, with a view to eventually forming local associations whose business it will be to interest the press and the public to such an extent that the assistance of the national government, states, counties and townships may be secured to push the plan to a successful issue. The party made a good many stops on the way and addressed a number of meetings, at all of which assurances were given of hearty co-operation. Since their arrival the members of the party have spent a great deal of their time at the Chicago Automobile Club, whose president, F. C. Donald, is one of the trustees of the road association. The club has arranged for a run on Thursday afternoon, in which the vehicle in which the party traveled will participate. In the evening there will be an entertainment at the clubhouse, at which Mr. Boardman will outline the plans of the association and present details of the trip and photographs taken on the route.

Ring Oiling Bearing.

A form of ring oiling bearing which is much used on dynamos and other high speed machinery is illustrated as applied to the crank shaft bearings of a gasoline automobile motor. It is exceedingly simple and the oil will last for weeks without replenishing. When this is necessary the used oil can be withdrawn by removing the plug shown in the lower part of the chamber. A cover in the shape of a circular disk, through which the crank shaft extends, and which fits very close to the same, is also provided. Its use prevents oil from being carried or thrown out of the bearing, and surplus oil is thus returned to the oil chamber, through the opening below the outside end of the bearing. The oil ring should be made of bronze and is of rectangular section as shown.



RING OILING BEARING

ANSWERS TO CORRESPONDENTS.

Sandusky, O.—Editor MOTOR AGE: I am making a magneto like the one described in MOTOR AGE. What is the best way to magnetize the horseshoe magnets? Holding them on the pole pieces of a dynamo does not magnetize them strongly enough. What is the best steel to make these magnets of? I had a forging made of Swedish iron. I intend to wind each leg with wire, then set the steel magnet, with coil of wire around each pole, on top of this wrought iron piece, send a current around the wrought iron coils and a current arou the coils that are around the steel magnets. I want to use 110 volts around these coils. What size and how much double covered cotton wire ought there to be around the wrought iron core, and how much wire around the steel magnet? This upper coil I intend to make fit loosely, so that the magnets will slip in easily. Please answer in MOTOR AGE.—D. C. Allen.

Magnets, such as described, are not suitable for the purpose. They should be made as shown in the article on "The Construction of a Magneto Generator." A number of small permanent magnets have a greater magnetic effect and can be magnetized more strongly than a single large one. Swedish iron is not suitable for permanent magnets. Magnet steel can be procured from any reliable heavy hardware concern. An ordinary dynamo will not magnetize permanent magnets sufficiently to be of any use. A plating dynamo, which has a very low voltage and an enormous current, is generally used for this purpose. It would be impossible to magnetize the magnets in the manner mentioned, as the proper amount of wire could not be wound on them to give the required resistance, and if less were put on of a larger size the wire would probably be fused.

Flat or Beveled Valves?

Battle Creek, Mich.—Editor MOTOR AGE: Can you inform me why some makers of gasoline engines make the inlet valves of their motors with flat seats and their exhaust valves with bevel seats? I am designing a gasoline engine and would like to know which is the best form of inlet valve to use, the flat or the bevel seat.—T. H.

The flat seat form of valve requires a slightly less lift to give the same area of opening as the bevel seat type, but is more expensive to make and harder to keep tight. Aside from this fact it has not as direct an air passage from the induction pipe to the cylinder.

More Power or Two-Speed Gear?

Denver, Colo.—Editor MOTOR AGE: I have a 2¼-horsepower motor bicycle which will not climb some of the hills around here. Which would you advise me to do, get a higher powered motor or have some form of two speed gear attached to the hub of the rear wheel?—S. B. F.

If the motor bicycle will run well on good, level road at a high speed it would be better to put on a two speed gear instead of a high powered motor, as this would add a great deal of weight.

Balancing a Fly Wheel.

Milan, O.—Editor MOTOR AGE: Can you publish a rule or formula by which I can properly counterbalance a single cylinder vertical motor to prevent a jerky motion of flywheel when running at high speed?—F. G. Weichel.

There is no authoritative rule or formula for balancing the flywheels of a vertical single cylinder motor. The only practical way is to connect the piston and connecting rod with the crank shaft and with the flywheel in its proper place on the shaft balance the whole outfit on a pair of V-shaped ways, fastened on two horses and adjusted absolutely parallel and level with each other. A balance can then be attained by attaching weights to the proper point inside the rim of the flywheel until the piston, connecting rod and crank shaft jaws balance the flywheel. In good practice the flywheel should be somewhat overbalanced to allow for the impact of the piston and connecting rod, caused by their reciprocating action when in operation.

Gasoline, Acetone and Picric Acid.

Flint, Mich.—Editor MOTOR AGE: Some time ago I read in your journal that a solution of picric acid in gasoline had been used by a chemist to increase the explosive force of the mixture with air. Allow me to suggest that as this chemist states, picric acid dissolves with difficulty in gasoline, but I have found that by mixing acetone with the gasoline it is possible to dissolve picric acid quite freely in the mixture. I have not tried this mixture in my auto engine, but should be pleased to have someone else do so and kindly write whether the cylinder head remains intact.—Orson Millard.

Tests conducted abroad show a very violent explosion, but the acid has an erosive action on bright exposed surfaces. Picric acid has been much discussed by amateurs since the publication of the item referred to. Prudence will induce all except experienced persons to avoid dangerous experiments. The writer of the above letter is an analytical chemist, but even he, as indicated by his communication, is not willing to assume the risks of ruining his engine and possible personal injury.

Wants Phenomenal Motor Bicycle.

Evansville, Ind.—Editor MOTOR AGE: I would like to know if you can give me the maker's name and price of a motor bicycle embodying the following points: 1. Chain drive. 2. Two-speed gear. 3. Motor powerful enough to climb a grade 1 in 8 without help. 4. Entirely automatic lubrication. 5. Gasoline capacity for 100 miles on level roads. 6. Weight not to exceed 100 pounds. 7. Speed from 25 to 30 miles per hour. 8. Magneto form of ignition.—J. H. A.

There is no machine at present on the market embodying all these features, and it is a rather hard matter to say when such a machine will be brought out.

Solder for Aluminum.

St. Louis, Mo.—Editor MOTOR AGE: Is there any reliable solder that will actually solder aluminum? If not, can you give me recipe for making the same?—B. T. H.

The following alloy is said to make an excellent solder for aluminum: Tin, ten parts; cadmium, ten parts; lead, one part; zinc, ten parts. Before soldering place the pieces to be soldered in a strong solution of hyposulphite of soda for about an hour.

Wilburine Motor Cylinder Oil.

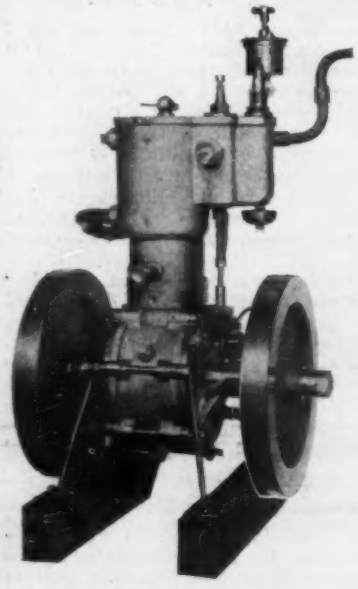
Wilburine cylinder oil, for gasoline motors, the address of the agents or makers of which was asked for recently, is handled by Montague Hawnt & Co., 146 Clerkenwell Road, London, England.

Kenneth Skinner has returned to Boston after a lengthy tour in Nova Scotia with a De Dion motorette. The roads, he says, are generally sandy and rutty, but at one period of the journey he covered 110 miles in 4½ hours.

KEROSENE MOTOR FROM AUSTRALIA.

Inventor Spends 11 Years Developing One for Whose Success a Correspondent Vouches.

Melbourne, Australia, Aug. 22.—Some time since I wrote you, asking for information re kerosene motors. My reason for asking the question was the high price of gasoline and the limited supply here. The excessively high rates for freight and insurance, and the disinclination of ships to carry it, render it unlikely that it will ever become much cheaper. If you were to take a trip into the country you would have to ship a supply of gasoline to various points along the route, as I do not think a full gallon could be procured anywhere in the state outside of Melbourne. The full control is vested in one firm, the Colonial Oil Co., which in the absence of opposition, is able to make the price to suit itself. For this reason, although I have been inclined to purchase an automobile, I hesitated, and so have many people. We have lived in hope that some genius would invent an engine that could utilize kerosene for fuel, as the best of kerosene is cheap, say 62 cents per 5 gallons.



An Australian Kerosene Motor.

In a MOTOR AGE a few weeks since you described a kerosene engine just invented in Connecticut which had to be torch heated before an explosion could be obtained. I showed it to several of my friends, two or three of which wrote to the inventor at once for particulars. Then, strange to say, I found that during the last eight months an automobile has been running here successfully propelled by a kerosene engine, invented and built here. I have known the inventor for several years and knew that some years ago he invented an automatic carbureter, which was successful, but knowing the disabilities of gasoline, he turned his attention to the building of an engine which could utilize kerosene, and happily he has succeeded beyond his most sanguine expectations in producing an engine which can be utilized for any other purpose as well as for automobiles

I send you photos of the engine and of his automobile, which he tells me he has been continually using for several months with the greatest satisfaction. He took me to his work shop and, behold! the thing I had inquired for all over the world, ready to run. You will observe by the photo that it is a simply constructed affair. He turned on the fuel tap, switched in the spark circuit, gave the crank a turn and away went the engine. He only claimed 5 horsepower, but the brake test showed 6 1-3. It is a four-cycle engine, with 6-inch piston stroke, with two fly-wheels, the whole weighing 275 pounds. The carbureter or atomizer is at the right hand upper side of the cylinder. The inventor's idea was to atomize the kerosene instead of vaporizing and therefore doing away with the necessity for heating the cylinder to obtain an explosion. He succeeded in doing this with the aid of the perforated hollow cone on the top of the atomizer. The air is drawn in through the perforation and mixed with the kerosene on its way to the cylinder by passing it over, through and around several plates, thereby reducing it to an impalpable liquid, which makes it highly explosive. He uses the jump spark, it giving entire satisfaction, and the cylinder is water cooled.

The salient points are cheapness of fuel, as the inventor assures me that 6 cents' worth of common Russian kerosene will run his automobile, which weighs 1,600 pounds, 20 miles, carrying four passengers, at the rate of 16 miles per hour, and the small amount of water necessary to keep it cool. The water tank holds 4 gallons, which will last from 100 to 150 miles. Absence of odor and noise is remarkable. While the engine was running I held my nose at the muffler opening and could not detect the slightest smell. I am sure if I had been looking the other way, so far as noise of exposion was concerned, I could not have told whether the engine was running or not. Small amount of lubrication is necessary in the cylinder and the tendency to collect carbon or dirt in the atomizer is absolutely nil. The method used to start the engine is to have a small supplementary tank holding about a quart of benzine, which is first admitted. A turn or two given to the crank and the first explosion occurs. The kerosene is then turned on and the benzine turned off. Judging from the amount of benzine used in my presence, a quart would last a month.

The speed is governed by the spark lever. The inventor tells me that he has speeded up to 40 miles per hour, although he has not up till now given the speed feature any consideration, his entire aim being to get the engine thoroughly reliable mechanically before he let the public know what he was working on. As yet he has not given the commercial side of the matter any thought. He has spent over $10,000 on his experiments without asking for assistance, and was prepared to go right on had he not dropped on the right thing. He has been working at his engine for 11 years continu-

Sutton's Carriage with Kerosene Motor.

ously and has built eleven different engines. He has completed patents in all the principal countries in the world, including the United States. The inventor is in very sound financial circumstances, being the proprietor in conjunction with his brother of one of the largest music ware houses in the city of Melbourne, with branch houses in all the principal towns of the state. His address is H. Sutton, care Sutton's Music Warehouse, Bourke street, Melbourne.

F. W. Goding, United States consul at Newcastle, N. S. W., sends a report which may eventually have an important bearing on the price of gasoline in Australia. He says: "It is reported that an oil spring of good quality has been discovered in the southeastern district of South Australia. The spring is near the lakes which exist at the mouth of the Murray River, in the vicinity of the little town of Meningie, on the eastern shore of Lake Albert. The existence of petroleum in this desert region has been known for years. The oil exudes from the banks of Lake Coorong, and also from the more southern coast line. The quantity of the supply and the purity of the oil are questions for future investigation. At present, large quantities of kerosene are landed at the various ports of this commonwealth from Asia and America. The oil is stored in immense tanks, from which it is retailed much in the same way as milk. Should the discovery develop into an established industry, it will seriously affect the importation of American kerosene into this commonwealth."

Speedway Idea Secures Support.

New York, Sept. 29.—William R. Hearst, since his return from Europe, has blossomed out as an automobile enthusiast, and the Journal shows the earmarks of it in the liberal space devoted daily to the sport. A. G. Batchelder, chairman of the N. C. A. board of control, by the way, cycle editor of the paper, is contributing much of the matter. The Journal has taken up, with its accustomed vigor, the idea of an automobile speedway. It has suggested that part of the several roadways devoted to cycling, riding and driving and constituting the Ocean Parkway, Brooklyn, be converted into a motor vehicle speedway course. An available speedway is also suggested in the Bronx park district. The idea will some day become a reality and it may come sooner than people think.

Hoosier Enthusiasts Want a Boulevard.

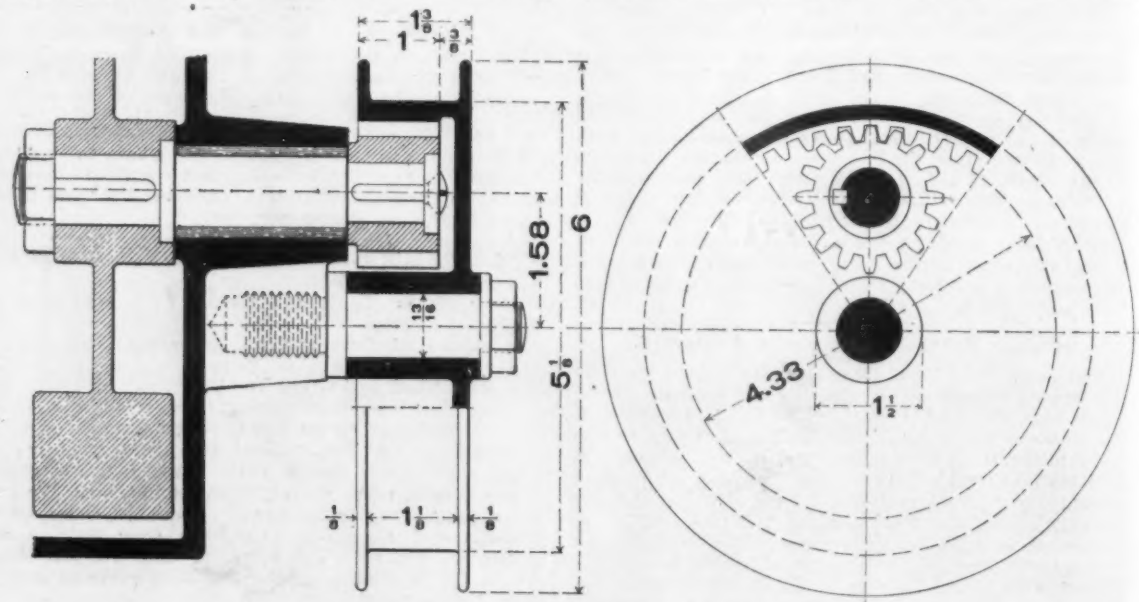
Anderson, Ind., Sept. 28.—There is a movement on foot among automobile owners to build a boulevard between this city and Indianapolis. G. A. Lambert, of the Buckeye Mfg. Co.; T. W. Wright, formerly of the Wright Shovel Co. and now retired; Mr. Osborne, D. F. Kauffman and others are at the head of it. At present these men are trying to interest Indianapolis capitalists and also people along the line. It is the purpose to incorporate a company with a capital stock of a quarter of a million dollars to buy a right-of-way 60 feet wide along the line of the Union Traction Co. and asphalt the same. The company would use it for speeding purposes and also put on passenger stage coaches.

The San Francisco Bicycle Board of Trade has decided on the promotion of another mixed automobile and bicycle race meeting. Edward Mohrig, of the Yosemite Cycle Co., is chairman of the committee. The races will occur on October 5.

A number of races occurred at the Minneapolis Driving Park on Tuesday last before about 1,000 spectators. The same difficulties of classifying the machines as have been experienced by other promoters made the racing something of a farce, all of the events having been practically won before the contestants had gone half the distance.

THE CYCLE AGE

As matters now stand the driving pulley of a belt-driven motor cycle is a cause of annoyance. On account of the high speed of the motor the pulley must be very small: hence it has but little belt surface, and to obtain a good pull the belt must be exceedingly tight. This entails a great loss of power through friction, to say nothing of the extra wear upon the motor shaft and rear wheel bearing. The construction shown in the accompanying drawing is a form of reduction or what is commonly known as back-gear belt drive in which the speed of the driving pulley is considerably reduced, allowing a pulley of much larger diameter to be used than with the present construction, giving a much greater belt surface and consequently less strain on the belt, thereby reducing friction and wear upon the motor shaft and rear wheel bearing. This device can be used upon any existing type of motor by having an additional boss put upon the pattern for the crank chamber casting. This device takes scarcely any more room, so far as width is concerned, than the ordinary form of flat belt drive with the pulley attached directly on the motor shaft. The pinion should be made of tool steel and hardened after cutting. It is 1 1-3 inches pitch diameter and No. 12 diametral pitch, with 16 teeth. The driving pulley, should be of phosphor bronze, and the internal gear, which forms an integral part of the same, is 4⅓ inches pitch diameter, also No. 12 diametral pitch and has 56 teeth. The stud upon which the driving pulley rotates should be made from well annealed tool steel, but not hardened. The driving pulley is held in place by means of a lock nut and steel washer. All the necessary dimensions for constructing this device are shown on the drawing.



REDUCTION GEAR FOR BICYCLE MOTOR.

Michael Wins and Loses.

A throng that filled the Princes track at Paris on Sept. 14 departed rather disappointed and without enthusiasm. Accidents spoiled what at first looked to be a hotly contested hour race between Michael, Bouhours and Contenet. While Jimmy had the best at the start and Contenet was left behind, owing to his pacing machine not finding the right carburation, Bouhours was left on the post, as he lost his pedal. The speed was immediately brought to the usual record-breaking going, and before three laps had been covered Michael was within a few seconds of the record. Bouhours was going at marvelous speed, and before the 5-kilometer mark had passed the midget. At the tenth kilometer the record was broken by 2 2-5s., the distance being covered in 8:16. Contenet was then lapped and Michael about 100 yards in the rear. It was apparent that the American was not going as well as on the previous Sunday, due to his pacing machine being out of order. At the twentieth kilometer the former champion of France lapped Michael, who sat up and waited for another pacing machine. Bouhours continued to ride at a steady gait until the half hour ended, during which he had covered about 23¼ miles, when a pacemaker who was riding on the track ready for emergency swerved and Bouhours was thrown about 15 feet into a group of spectators. Happily, only light injuries re-

sulted. This ended the race, and the management immediately announced a half-hour match between Michael and Contenet. The latter held his own for many kilometers and was only compelled to give up when his motor cycle refused to work.

Late European Racing.

Robl defeated Dickentmann by 12 laps in the 50-mile race in Hanover, Germany, on Sept. 14 in the presence of about 4,000 people.

Ellegaard defeated Rutt in three straight heats by one-half, one-quarter and three-quarters of a length respectively at Duisburg, Germany.

The usual Thursday evening meeting at the Buffalo track, Paris, was not much out of the ordinary. A fair crowd came to see the Contenet-Gougoltz match. The first named won the first and third heats, Gougoltz winning the second, owing to an accident to Contenet's machine. The motor cycle race was won by The from Fossier and Devilly, covering the 6 miles in 7:21.

The Grand Prix of Germany, which has always been regarded as almost as interesting an event as the Grand Prix of Paris, was not by any means as interesting this year as formerly. The event, which is run on three days, started on Sept. 14 on the Kurfursten Damm, of Berlin. Arend, Grogna, Seidl, Kudela, Herring, Buisson, Eros and Ellegaard were the winners of the heats. The winner of each heat respresented a different country. The final was not run on account of rain.

New Company Takes Hengerer's Business.

The Toledo Mfg. Co. has purchased the entire bicycle business, including bicycles, parts and good will, of the William Hengerer Co., of Buffalo, and will continue to manufacture the Buffalo King and Buffalo Queen special bicycles and a complete jobbing line, as heretofore. It will also make attractive additions to the line. J. B. Eccleston, formerly manager of the bicycle business of the company, will be secretary and sales manager of the company, whose factory will be located at Toledo and sales office at 59 Franklin street, Buffalo.

Two Meetings at Buffalo Track.

Paris can certainly boast of possessing some real fanatics among its cycle lovers. Not satisfied with holding an interesting sprinters' meet in the afternoon, the Buffalo management gave its public a really good middle distance event on the same day at dark, at which Contenet, who had ridden in the afternoon against Michael, took part. The other riders were Taylor and Gougoltz. The latter won the contest in grand style, lapping Taylor twenty-four times. The 31 miles were covered in 41:52.

American Cycle Mfg. Co. Receivership.

The rival aspirants for possession of the American Cycle Mfg. Co.'s plants in Chicago, under the receivership proceedings, have reached an agreement. A meeting was held last week and arrangements were made under which John C. W. Rhode and Max Whitney, who were appointed after Messrs. Coleman, Pope and Miller, but qualified immediately, will retain possession for the present. Meanwhile, so far as appearances go, business goes on as usual.

Fight for L. A. W. Offices.

New York, Sept. 28.—A dash of real bitterness has been added to the New York division L. A. W. campaign by the striking from the roll of opposition candidates for representatives the names of J. B. Uhle, E. L. Ferguson and H. P. Macreary as ineligible. The independents raised a howl against the present incumbents for this, declaring that they had charge of all the books and could rule as they pleased. It now transpires that the incligibility of these gentlemen was reported by Abbott Bassett, secretary-treasurer of the national body, to whom, according to the rules, the names of the candidates were submitted. Mr. Bassett's report stated that Mr. Uhle had resigned and that Messrs. Ferguson and Macreary were not members.

Some Evidence of Prosperity.

It is not difficult to discover abundant proof of the fallacy of the idea entertained by some people that the bicycle business is dead. There was in Chicago on Monday a visitor from Europe who imports large quantities of American goods, and who offered a well-known manufacturer of parts, who possesses a large capacity, an order for $75,000 worth of goods. The manufacturer declined to accept it, stating that he was absolutely unable to produce them. Last year the Norvell-Shapleigh Hardware Co., of St. Louis, placed with the National Cement and Rubber Co,. of Toledo, a contract for its season's supply of High Pressure and other cement. The order was stated at the time to have been the largest ever given at one time by a single house. The parties to the contract have just closed another with the understanding that the order placed last year shall be doubled. The St. Louis concern had on hand at this time last year a large stock room full of bicycles and sundries, but at this moment the stock room is practically empty. The concern has made arrangements to largely increase its traveling force.

Huret Will Be an Invalid.

As was expected, the accident which befell the great French rider, Huret, has brought his racing career to an end. Whether the limb will have to be amputated was not definitely stated in the last French mails, but he will never again be able to ride. A subscription has been opened by the Auto Velo for the purchase of a pair of "crutches of honor" to the popular champion. In two days the subscription had reached $400. Several meetings are being organized in Paris, the receipts of which will be given to Huret, who, it appears, is in need of financial help.

TURNER'S FALLS, MASS.—W. L. Severance has sold his bicycle repair business to Martin Neipp.

OAKLAND, CAL.—W. N. Woodcock, of Jackson, Amador county, has purchased the bicycle business of J. A. Briege at 354 Twelfth street.

PRESQUE ISLE, ME.—Henry Dunn has opened a bicycle repair shop in his building on North Main street, and is doing a good business.

SALINA, KS.—Fred L. Martin has bought out the Lohmiller Cycle Co., and E. E. Lohmiller will return to his employ. A few weeks ago R. J. Thompson absorbed the bicycle shop formerly owned by Fred Miner. By these two consolidations Salina has now but two first class bicycle repair shops where she had five a month ago.

GREENFIELD, MASS.—J. W. Blanchard, of Hopedale, is the purchaser of the George A. Bates place. He has gone into partnership with Casper Bickel in the manufacture of bicycle pedals and callipers.

LYNN, MASS.—Walter Porter, trading as Walter Porter & Co., bicycle dealers, Munroe street, has filed a petition in bankruptcy. The liabilities are $2,806, and the nominal assets are $2,846.

BENTON HARBOR, MICH.—A. R. Weston has closed his bicycle repair shop in the Stock Exchange building.

WATERLOO, IA.—C. E. Newville has started up a bicycle repair shop on East Fifth street.

MOUNT HOLLY, N. Y.—Robert Story is contemplating buying the bicycle business of the S. R. Wetherill estate.

ANDERSON, IND.—Charles Miller, who owns a bicycle store at 1235 South Meridian, has bought out the cycle stock of W. T. Miller, and will begin the sale of bicycles and articles connected with them.

ELLSWORTH, ME.—The bicycle business of the late F. S. Jones has been bought by L. W. Jordan. Ernest Sargent, who has worked for the company for the last 2 years, and who had charge of the business during Mr. Jones' illness, will continue in his old position.

Figuring the Profits

As the season draws to a close have you any

Profits to Figure?

Were you one of the wise dealers who bought good bicycles and, aided by their reputation, made money on them?
If not, do better hereafter. You are in the minority.
Ask some member of the great majority of dealers—all of our agents have made money this season—and he will advise you to select from this line of machines:

Columbia, Crescent, Cleveland,
Monarch, Tribune, Rambler,
Imperial, or our line of Juveniles.

We can give you Motor Bicycles of unquestioned speed, economy and durability. Hygienic Cushion Frames, Regas Spring Frames.

There is yet time to sell a lot of them.

American Cycle Mfg. Co.

Western Sales Department, 497-501 Wells Street, Chicago, Illinois.

EASTERN SALES DEPT.
152-154 Franklin St., New York City.

PACIFIC COAST BRANCH,
451 Mission Street, San Francisco, Cal.